

In forty-five cases winds of twenty-five miles or more per hours were reported from scattered stations for which no signals had been displayed; in the majority of cases fair weather prevailed; in some, the signals had been lowered too soon. No general storm passed over any district without the display of signals beforehand.

Professor T. C. Mendenhall, director of the "Ohio Meteorological Bureau," in his report for January, states:

Railroad signals during the month of January have been carefully observed at Millersburg, and have been found to be verified both as to temperature and rainfall in 83 per cent. of the predictions. Through the kindness of Mr. Affleck, general ticket agent of the Cleveland, Mount Vernon and Delaware railroad, a considerable number of new "testing stations" have been established, and a more complete report will be made up for the month of February.

The signals above referred to consist of colored symbols displayed from the sides of the baggage cars, representing the daily forecasts, as telegraphed at midnight from the office of the Chief Signal Officer to said bureau.

TEMPERATURE OF WATER.

The temperature of water, as observed in rivers and harbors during January, 1884, with the average depth at which the observations were made, and the mean temperature of the air at the various stations, are given in the table below. The highest water temperature reported during the month, 75° 7, was observed at Key West, Florida; the lowest, 29° 5, was reported from Portland, Maine. Observations were interrupted by ice as follows: Boston, Massachusetts, 7th, 8th, 28th; Grand Haven, Michigan, from 3d to 31st; Chincoteague, Virginia, 6th, 7th, 8th; Cleveland, Ohio, from 3d to 31st.

Temperature of water for January, 1884.

STATION.	Temperature at bottom.		Range.	Average depth, feet and inches.	Mean temperature of the air at station.
	Max.	Min.			
Atlantic City, New Jersey.....	42.0	30.0	12.0	ft. 4 in. 9	29.2
Alpena, Michigan*.....					12.7
Augusta, Georgia.....	51.5	36.0	15.5	9 4	43.4
Baltimore, Maryland.....	36.0	30.0	6.0	9 11	32.0
Block Island, Rhode Island.....	39.7	29.8	9.9	8 2	29.5
Boston, Massachusetts.....	31.5	29.7	1.8	22 10	23.3
Buffalo, New York*.....					18.0
Canby, Fort, Washington.....	50.0	37.9	12.1	17 8	42.6
Cedar Keys, Florida.....	68.6	37.5	31.1	11 4	51.6
Charleston, South Carolina.....	56.1	44.3	11.8	40 1	46.6
Chicago, Illinois*.....					19.2
Chincoteague, Virginia.....	44.0	31.3	12.7	5 3	32.7
Cleveland, Ohio.....	32.9	32.1	0.8	14 0	19.3
Detroit, Michigan*.....					21.4
Delaware Breakwater, Delaware.....	41.2	30.8	10.4	8 10	31.1
Duluth, Minnesota*.....					5.3
Eastport, Maine.....	39.3	33.3	6.0	15 11	17.6
Escanaba, Michigan*.....					8.6
Galveston, Texas.....	58.4	37.0	21.4	9 8	46.7
Grand Haven, Michigan.....	32.3	32.0	0.3	19 0	20.9
Indianola, Texas.....	54.5	30.8	23.7	7 9	46.7
Jacksonville, Florida.....	63.5	49.5	14.0	18 0	51.7
Key West, Florida.....	75.7	62.2	13.5	17 8	68.3
Mackinaw City, Michigan*.....					13.0
Marquette, Michigan*.....					10.9
Milwaukee, Wisconsin*.....					13.0
Mobile, Alabama.....	55.3	45.0	10.3	14 2	43.5
New Haven, Connecticut.....	32.1	29.8	2.3	14 3	23.2
New London, Connecticut.....	39.0	33.5	5.5	12 2	26.1
New York City.....	36.3	29.3	6.5	15 11	26.2
Norfolk, Virginia.....	43.5	33.0	10.5	10 2	38.3
Pensacola, Florida.....	59.9	46.6	13.3	16 9	46.4
Portland, Maine.....	32.5	29.5	3.0	16 6	22.4
Portland, Oregon.....	45.4	37.9	7.5	56 3	38.7
Provincetown, Massachusetts.....	37.0	31.0	6.0	11 4	28.5
Sandusky, Ohio.....					20.8
Sandy Hook, New Jersey.....	36.5	34.0	2.5	1 6	27.7
San Francisco, California.....	51.3	49.6	1.7	39 7	50.6
Savannah, Georgia.....	53.3	47.3	6.0	11 7	46.6
Smithville, North Carolina.....	53.4	49.3	13.1	10 0	43.2
Toledo, Ohio*.....					20.0
Wilmington, North Carolina.....	48.7	40.3	8.4	20 10	44.3

* Frozen the entire month. † Observations interrupted by ice: see text.

ATMOSPHERIC ELECTRICITY.

AURORAS.

The director of the "Tennessee Weather Service" reports the following:

An aurora was observed at Huntington on the morning of the 21st, and a very brilliant one at Waverly on the 31st.

The only auroral displays reported by the Signal Service observers during the month, occurred on the evenings of the 20th and 25th. The display of the 20th was only observed at Point Judith, Rhode Island, and the observer reports it to have been a faint display lasting from 9.30 p. m. until midnight.

The display of the 25th was observed as follows:

Burlington, Vermont, 25th.—A bright aurora of a pale yellow color, with occasional streamers flashing toward the zenith, from 11.30 p. m. until midnight.

Escanaba, Michigan, 25th.—At 10.15 p. m. an aurora was visible, but cloudiness partially obscured the display. The light was a pale straw color extending upward 25°. No beams were observed.

Fort Buford, Dakota, 25th.—An aurora in the form of "merry dancers" was observed from 9.40 to 11.37 p. m. The display consisted of brilliant white streamers, the outer edges being of a reddish color. The auroral light covered the northern sky from northwest to northeast and to an altitude of 45°.

Poplar River, Montana, 25th.—An auroral light of pale straw color, covering about 45° of the northern horizon, was visible from 9 to 9.25 p. m.

This display was also observed at Cresco and Humboldt, Iowa.

ELECTRICAL PHENOMENA.

Huron, Dakota.—An extensive electrical storm prevailed on the 10th. The telegraph lines along the Chicago and Northwestern railroad, both east and west, were operated without battery connection.

Capt. J. E. Dutton, of the s. s. "Sardinian," reports on the 26th, at 12.00 p. m. (Greenwich mean time), between N. 54° 58', W. 17° 46' and N. 55° 17', W. 9° 00', atmospheric electricity visible on the mast-heads, yard-arms, and wire stays.

THUNDER-STORMS.

Thunder storms were reported in the various states and territories as follows:

Alabama.—Mobile, 7th.

Arizona.—Fort Apache, 16th, 17th, 18th, 26th; Maricopa, 15th.

Arkansas.—Lead Hill and Little Rock, 30th.

California.—Cape Mendocino, Princeton, and San Francisco, 26th; Hydesville, 26th, 27th; Fall Brook, 28th.

Florida.—Pensacola and Saint Augustine, 7th; Cedar Keys, Jacksonville, Newport, Tallahassee, 24th; Key West, 24th, 25th; Archer, 25th.

Georgia.—Savannah, 8th; Atlanta, 31st.

Illinois.—Cairo, 30th, 31st. During the evening of the 31st brilliant lightning displays were observed near the horizon between west and south. The flashes continued almost incessantly from 6 to 11 p. m.

Indiana.—South Bend, 27th; Fort Wayne, 29th; Griffin Station, Laconia, Logansport, Vevay, and Wabash, 30th.

Iowa.—Burlington, 30th.

Kentucky.—Louisville, 30th.

Louisiana.—Grand Coteau, 7th, 14th; Liberty Hill, 14th.

Michigan.—Hillsdale, Hudson, and Mottville, 30th.

Missouri.—Pierce City, 31st.

North Carolina.—New River Inlet, 1st; Smithville, 1st, 19th; Fort Macon, 8th; Highlands and Ogeeta, 31st.

Ohio.—College Hill and Wauseon, 30th; Jacksonburg, 31st. At Toledo, from 6 to 8 a. m. of the 30th heavy rain showers fell, accompanied by sharp zigzag lightning and heavy peals of thunder. A thunder-storm at this season of the year is of rare occurrence at this place.

Oregon.—Albany, 7th.

Pennsylvania.—Chambersburg, 5th.

South Carolina.—Charleston, 1st, 8th.

Tennessee.—Memphis, 30th, 31st; Ashwood, Chattanooga, Milan and Nashville, 31st.

Wisconsin.—Sussex, 30th.